QUININE PLANTATIONS OF JAVA.

All About the Little Pill that Takes Away the Fever—The Great Cinchona Estates of the Dutch East Indies—They Make from 30 to 50 Per Cent a Year—How They Are Managed and the Chances for Quinine Raising in the Philippines. Big Government Plantations—A Visit to a Quinine Factory—Mosquitoes and the Malaria—A Chat with a Resident Governor—How the Dutch Lease Lands, Etc.

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Bandong, Java,—The United States government should investigate the possibilities of cinchona plantations in the Philippine Islands. The climate and soil there are about the same as those of Java, and the Dutch are making fortunes out of the business. They began to plant trees only a few years ago and they are now producing more than four-fifths of all the quinine and cinchona bark used in the world. Last year's crop amounted to more than 12,000,000 pounds of cinchona alone, and the output is steadily increasing. The demand is also increasing and the plantations promise to be more and more profitable in years to come. At present they are paying from 30 to 40 per cent dividends and are, I am told, all doing well.

Money in Quinine.

The cinchona plantations of Java are managed by the government, by syndicates and by individuals. The syndicates have the most trees. They have eighty-three great quinine estates which are bringing in altogether about $4,000,000 a year. The most of these estates are on lands leased from the government for terms of seventy-five years. The planters agree to make certain developments and to pay certain rents in lieu of taxes, and they have to carry on their work after the rules laid down by the government. The private plantations are managed to some extent the same way. They are well cared for and three of them each yield about 300,000 pounds of quinine annually.

The government plantations are conducted more with regard to the study of the cinchona tree and the extraction of the quinine from its bark than for profit, although I believe they pay. They are now raising about 700,000 pounds of quinine a year and in addition to this are supplying all the quinine needed for the Dutch army and navy.

Where the Quinine Originated.

But before I describe the government experiments, let me tell you something about the tree whose bark supplies the little pill that takes away the fever. The cinchona tree comes originally from the eastern side of the Andes. There is a strip of country about a hundred miles wide and over two thousand miles long, running along the slopes of those mountains from Venezuela as far south as lower Bolivia, which is spotted with quinine groves. The trees are far in the interior and hard to reach. I saw something of them during my travels in South America in 1898. The bark is cut in the forests and hauled for many miles on the backs of donkeys to the rivers or the seaports. I saw a great deal of it at La Paz, where it was brought to be shipped by stage or rail to the coast. A donkey load weighed from one to two hundred pounds, and $32 worth was about all one donkey could carry. One of the Bolivians offered to sell me a forest of 800,000 acres for $64,000, or eight cents a tree, and others of whom I inquired told me they had experimented in working the plantations and lost. Some years ago there was quite a craze at La Paz for such speculation. The cinchona or Peruvian bark was then selling for about 2 cents a pound, or for thirty times as much as it is bringing there now. A number of plantations were set out, and about $2,000,000 were invested in them by La Pazites alone. Then quinine fell, and now it hardly pays to cut the bark from the wild trees, although the conditions in Java and the Philippines are such that the trees could be raised there at a profit.

From the Andes to Java.

Until within comparatively few years it was supposed that the quinine tree would grow only on the Andes. The South Americans thought they had the monopoly of the business. The various governments taxed all exports of the bark. It was all shipped to London, where it was handled by a trust, which raised and lowered quinine prices at will. Then the English government decided to introduce the trees in Ceylon and India, and the Holland government planned similar experiments for Java.

Both countries sent scientists to Peru and Bolivia for seeds and plants. The natives there got track of the matter and impeded their mission in every possible way. The Peruvian custom house officers would not let the English specimens leave the country for weeks, and in the meantime one of the Bolivians poured some boiling water over the seeds. After a time, however, both seeds and plants were secured for Ceylon and Java. The English set out large plantations in Ceylon, and also about Madras. They chose about the same latitude and climate as those in which the South American trees throve, and succeeded in producing trees which yielded a fair quantity of quinine.

The Javanese government set out its trees first in the botanical garden at Buitenzorg, and afterward here at Bandong and elsewhere. They experimented for some time, and finally discovered that the best tree for them was the ledgeriana bonus tree, which grows to double the thickness of a man's body and to a height of about fifty feet. In 1850 they had only 7000 of these trees. They have now many, many millions. The Java trees are of exactly the same variety as those used in India, but the planters here tell me that the Java bark produces far more quinine than the India bark, and that the trees yield differently according to soil and climate.

On the Cinchona Plantations.

This letter is written at Bandong, in the center of the best quinine-producing region of the world. It is situated in a basin in the Preanger, or mountainous region of Western Java, surrounded by quinine plantations. It has also the government factory where the bark is reduced to that bitter powder which kills the malaria. The plantations are in the mountains at about 3000 or 4000 feet above sea level. You see their rich, red color spotting the hills as you ride about, and in places you may see the natives taking up the trees or stripping off the bark. The soil here is very rich, and there are frequent rains all the year around.

How to Raise Quinine.

I am surprised at the scientific methods which prevail in the cultivation of the quinine estates. I have discussed them with the planters, and also with Dr. A. R. van Linge, the director of the factory. They all tell me that the trees must be planted just so, and the greatest care taken to enrich the soil. Oil cakes, and especially castor oil cakes, are used as manure. The ground is carefully cultivated and the plants are set out according to the methods which the government experiments have proved best.

The plants are raised from the seeds, which are sown in seed beds. The seeds are much like flax seed, so small that one ounce of them will produce about 30,000 plants. After the sprouts have grown about four inches high they are transplanted and later on transplanted again into the places where they are to stay.

At first the trees were set out wide apart, but now they are planted at every three or four feet, and as they grow alternate trees are cut out from year to year to give the others more room. The bark of those cut out is used, so that the plantation begins to produce something within a short time. The first cutting is at about the third year, and the cutting continues until the tenth year, when the trees are full grown. In taking out the trees both the roots and branches are saved, for they both yield quinine, although the best quinine comes from the bark of the stem. The bark is dried in the sun or in evaporators and then packed up and sent to the factory to be made into quinine.

One Thousand Trees to the Acre.

Dr. Van Linge tells me that about 1000 trees are planted to the acre and that on the government plantations there are single trees which will yield as much as $64 worth of quinine. At this rate 1000 would yield $64,000, the greatest profit per acre perhaps of any crop known. Even though it required ten years to grow the whole crop this would be equal to $6400 per acre per year. Divide this by four and you would still do well. You could have $1000 per acre, which is by no means a bad yield in these days of 4 per cent interest and 50 cent wheat.

In a Quinine Factory.

The biggest quinine factory of the world is situated in this city of Bandong. It is under government supervision, but is run as a private enterprise in the interests of the planters, although I believe they have no stock in it. The factory does not buy the cinchona bark, merely takes toll for its work. The bark is delivered in bales of 200 pounds each. These are carefully analyzed by the government chemists to find the percentage of quinine which each bale contains. After this the planters get a check for the value of the bark less the toll, and the bark is now thrown in with the other bark in the warehouse. I went with Dr. Van Linge through the different branches of the factory watching the processes of reducing the bark quinine. As it comes from the tree it looks not unlike ordinary bark, but when you taste it it is like biting into a pill. Much of it comes to the factory in dust, and it is all reduced to dust before it is carried into the mill.

Boiled in Kerosene Oil.

The dust looks like cinnamon ground fine. It is reddish brown, but each brown grain incloses some of the white atoms we know as quinine. The process is to get the white atoms out. This is done by mixing the dust with water and boiling it in mineral oils. The boiling is done in great vats of steel, in which a sort of kerosene refuse is put. There are steam pipes running through the vats which keep the oil just at the boiling point, or at almost 200 degrees Fahrenheit. At this point the dust is dissolved, and the quinine atoms separate from it and go into the oil, being soaked up as water soaks up salt. After twenty hours all the quinine has left the dust and become a part of the oil, while the residue sinks to the bottom.

The oil is now drawn off into other vats, where it settles. It now looks for all the world like clear water. It is really kerosene oil soaked with quinine. The next thing is to get the quinine out. This is done by introducing sulphuric acid and water. The acid takes up the oil, but rejects the quinine, and when the oil and acid are drawn off the bottom of the vat has a sediment of dirty white sand. This is crude quinine. It is clarified or refined much as we refine sugar, and at the end comes out in the frosted silver, flaky powder known as pure quinine. It is now packed into tins of 100 ounces and thus shipped to New York, Amsterdam, London world.

Quinine Plantations in the Philippines.

Dr. Van Linge tells me that 85 per cent of all the world's quinine comes from Java, and that 65 per cent of this is from the neighborhood of Bandong. He says that a large amount of that made here goes to the United States, and that the demand from there steadily increases.

Our government might easily set out plantations in the Island of Mindanao. That island is almost as large as Java. It has some of the richest soil of the tropics and contains mountainous regions not unlike Preanger. If the secretary of agriculture should establish an experimental cinchona estate in the mountains near Zamboanga or Davao, the matter could be easily tested, and it might result in exports of enormous value.

At present something like 16,000,0000 pounds of quinine are used in the world every year. This is about 2,000,000,000 grains, or enough to give every man, woman and child three two-grain pills, an amount which is manifestly not enough to counteract the malaria and the mosquitoes. An allowance of one dozen pills per person would quadruple the demand, requiring a product of 20,000,000,000 grains, or enough to build an quinine fortunes in every part of the Philippine Islands.

The Mosquitos and Malaria.

The scientists here are inclined to the belief now current at home that the mosquitoes communicate malaria. They tell me certain kinds of mosquitoes are full of malarial parasites, germs so small that it takes a billion of them to give a man a bad case of fever, and a quarter of a billion to produce a chill. These parasites breed so rapidly, however, that a few hours, or at most a few days, after being bitten by the mosquitoes the man is full of them and he soon comes down with what is known as malaria. The only thing poisonous to the parasites so far discovered is quinine. This kills them, the blood throws off the organisms and the man grows well again. I came near taking while in Ecuador not long ago from the bites of such mosquitoes. I had gone up to the foot of the Andes through a vast tract of flooded country which swarmed with malarial mosquitoes. I rode about for two days in a canoe through the tops of the trees being bitten by these insects, and upon my return to Guayaquil sects, and upon my return to Guayaquil close, something like the Chagres fever. I had a native doctor who gave me from thirty to sixty grains of quinine at a time and the quinine, I believe, killed the organisms and saved my life. Later on I met in Argentine one of our consuls, a Dr. Arres, who has been stationed for some years in the city of Para, at the mouth of the malarial Amazon. I told him of my experience with the fever and also that I was going up the Amazon. He thereupon warned me to saturate myself with quinine before I got there, saying that the fever germs could not live in cells which contain quinine. I did so, and though I traveled 2000 miles among the mosquitoes of the Amazon I had no sign of malaria.

A Chat with the Resident Governor.

During my stay here I have called upon the resident governor of the Preanger Provinces, Lord Van Benthem van den Berg. This man is one of the ablest of the officials in the Dutch East Indies and he has one of the most responsible positions of this island. The provinces over which he rules are exceedingly rich and he has many millions of natives under him. He has a magnificent home here surrounded by palms and other tropical trees and it was in it that he received me when I presented my letters from the governor general. He speaks English fluently and we chatted for some time about Java.

Among other things, I asked Lord Van Bethem van den Berg something as to the land system of the country. Said he:

"The lands here nominally belong to the government, and we really have control of most of them. We take charge of them to hold them for the natives in case the population increases so that we need them to feed the people. We will then dispose of them to small proprietors or in some way give them to the people. We believe it is our duty to take care of Java so that it will support the natives, and to do this we must keep the title to the lands out of the hands of speculators, and especially of the Chinese. The Chinese are anxious to get the lands, and, once in their possession, they work them solely for their own benefit, disregarding that of the people. They do not care if the natives are impoverished. They will establish stores on their lands and keep the laborers in debt by giving them credit and paying them in store orders. This would mean the practical enslavement of the natives. You see, the Javanese are much like children. They have no care for the morrow, and no idea whatever of accumulation. We protect them by holding on to the lands. If we allowed them to have the lands they would sell them to the Europeans, and they in turn might resell to the Chinese.

How the Government Leases Land.

"It was a good deal of a question with the government as to how to manage the lands," continued Lord Van Bethem van den Berg, "and I think you will find it quite a problem in the Philippines. When we took hold of this island there was much waste land, and it was undecided whether it belonged to the government or the natives. Therefore the government advanced the theory that the lands originally came from God to the kings of Java and to the Dutch government as the heir to those kings.

"The government now leases its lands for terms of seventy-five years at about a gulden, more or less, per acre. This rent takes the place of taxes, although there is an additional tax on incomes. At present there are about 900,000 acres leased out in that way, and it is the only way that land can be secured. Since 1816 the government has not alienated any land in this island, and at present there are little over two million acres owned by the Europeans, and less than half a million acres owned by the Chinese.

A Word About the Filipinos.

The conversation here turned to the Javanese as compared to the Filipinos, and I told his excellency that our people were telling the Filipinos they were our equals. He replied:

"In that you are making a mistake. They are not your equals. They are children, and you are doing as much wrong to tell them that as you would if you were to tell your little boy that he is as strong in body and brain as yourself. The Filipinos will not understand you, and you will do yourselves and them a damage which will take years to repair. We try to impress our superiority on the natives. They have been accustomed to look up to their chiefs, and we try to have them do the same to us. It may be that they will so advance in time that we can treat them differently. At present they are as happy as any people of their kind anywhere. They do not suffer, and travelers say they are the happiest and most prosperous of all the natives of the far East."

Frank G. Carpenter.

The Colored Deacon's Prayer.

A white minister was conducting religious services in a colored church in North Carolina recently, says the Roanoke News. After exhorting a bit, he asked an old colored deacon to lead in prayer, and this is the appeal which the brother in black offered for his brother in white: "Oh, Lord, gib him de eye oh de eagle dat he spy out sin afar off. Glue his hands to de gospel plow. Tie his tongue to de line oh truth. Nail his ear to de gospel pole. Bow his head way down before his knees, and his knees way down in some lonesome, dark and narrow alley, where prayer is much wanted to be made. 'Noint him wid de kerosene ile ob salvashun, and sot him on fire."